AMENDMENTS TO THE CLAIMS:

Claim 1. (Currently amended) An automobile communications method for an on-board mobile station across a plurality of radio zones which are consecutively arranged along a road, comprising:

providing each of the radio zones with a plurality of M communication frequencies;

providing N plurality of time slots in one period in each of said radio zones;

switching between said M communication frequencies within each of the radio zones using a time division scheme such that a different one of said N time slots is allocated for adjacent radio zones for each of said plurality of M communication frequencies by sequentially assigning at least two of said M communication frequencies to the N plurality of consecutive time slots ~~switching from one to another at least one time within the one period~~; and

switching a time slot allocated to the on-board mobile station to continuously communicate with the on-board mobile station across the plurality of radio zones, wherein communication between the plurality of radio zones and the on-board mobile station is made using a single one of said M communication frequencies within at least a single radio zone.

Claim 2. (Previously presented) The automobile communications method of claim 1, wherein the time slot used for communication with the on-board mobile station is switched in such a manner that communication with the on-board mobile station is continuously performed at one of said plurality of M communication frequencies over the plurality of radio zones.

Claim 3. (Original) The automobile communication method according to claim 1, wherein the time slot is switched in such a manner that communication with the on-board mobile station is continuously performed at different communication frequencies over the radio zones.

Claim 4. (Previously presented - Allowed) An automobile communications method between an on-board mobile station and a fixed station system comprising a plurality of radio zones consecutively arranged along a road, comprising:

providing each of the radio zones with a plurality of M communication frequencies;

providing a plurality of N time slots in one period in each of said radio zones;

switching between said plurality of M communication frequencies within each of the radio zones using a time division scheme such that a different one of said N time slots is allocated for each adjacent radio zone for each of said plurality of M communication frequencies by sequentially switching from one to another at a timing of every N/M time slot; and

continuously communicating with the on-board mobile station at one of said plurality of communication frequencies over the plurality of radio zones, wherein communication between said plurality of radio zones and said on-board mobile station is made using a single frequency.

Claim 5. (Previously presented - Allowed) The automobile communications method of claim 4, wherein the M plurality of communication frequencies in each radio zone are generated from a single reference frequency in accordance with a predetermined conversion

to be in a frequency-coherence state.

Claim 6. (Previously presented - Allowed) The automobile communications method of claim 4, wherein one time slot is assigned to a single on-board mobile station.

Claim 7. (Currently amended - Allowed) The automobile communications method of claim 6, wherein the time slot allocated to the on-board mobile station is switched in such a way that the on-board mobile station uses one of said plurality of M ~~o M f~~ communication frequencies over the plurality of radio zones.

Claim 8. (Previously presented - Allowed) The automobile communications method of claim 4, wherein each of said plurality of M communication frequencies is used for both transmission and reception to perform communication with the on-board mobile station according to a TDMA/TDD (Time Division Multiple Access/Time Division Duplex) scheme.

Claim 9. (Previously presented - Allowed) The automobile communications method of claim 4, wherein the plurality of M communication frequencies in each radio zone are generated from a single reference frequency in accordance with a predetermined conversion to be in a frequency-coherence state, wherein each of the plurality of M communication frequencies is used for both transmission and reception to perform communication with the on-board mobile station according to a TDMA/TDD (Time Division Multiple Access/Time Division Duplex) scheme.

Claim 10. (Previously presented - Allowed) The automobile communications method of claim 4, wherein the plurality of M communication frequencies comprises a plurality of different pairs of first frequencies and second frequencies, wherein the first frequencies are generated from one reference frequency in accordance with first predetermined conversion so that the first frequencies are in a frequency-coherence state over the radio zones.

Claim 11. (Original - Allowed) The automobile communication method according to claim 10, wherein the on-board mobile station generates a transmission local signal of the second frequency from a radio signal received from the fixed station system in accordance with a second predetermined conversion.

Claim 12. (Original - Allowed) The automobile communication method according to claim 11, wherein the fixed station system generates a reception local frequency from the first frequency in accordance with the second predetermined conversion as used by the on-board mobile station so that the reception local frequency and a radio signal received from the on-board mobile station are in a frequency-coherence state.

Claim 13. (Previously presented - Allowed) An automobile communications system comprising:

an on-board mobile station movable on a road;

a plurality of fixed stations comprising a plurality of radio zones consecutively arranged on the road, wherein each of the plurality of fixed stations are communicable with the on-board mobile station using a plurality of M communication frequencies; and

a control station providing plurality of N time slots in one period in each of the radio zones, controlling the plurality of fixed stations performing continuous communication with the on-board mobile station by switching said N time slots in adjoining radio zones with said on-board mobile station using one of said plurality of M communication frequencies in adjoining radio zones, switching one of said N time slots allocated to the on-board mobile station in accordance with the switching in said plurality of fixed stations and by switching between said plurality of M communication frequencies in each of the plurality of radio zones using a time division scheme such that adjoining fixed stations communicate with a plurality of on-board mobile stations using different frequencies of said plurality of M communications frequency at any given time, and sequentially switching said plurality of M communication frequencies from one to another at a timing of every N/M time slots, wherein communication between said plurality of fixed stations and said on-board mobile station is made using a single frequency.

Claim 14. (Previously presented - Allowed) The automobile communications system of claim 13, wherein the one of said N time slots allocated to the on-board mobile station is switched from one to another in such a manner that communication with the on-board mobile station is continuously performed at said one of said plurality of M communication frequencies over the plurality of radio zones.

Claim 15. (Previously presented - Allowed) The automobile communications system of claim 13, wherein each of the plurality of fixed stations comprises:

a frequency generator for generating the plurality of M communication frequencies

from the signal of a reference frequency input from the control station;

a selector for selecting one communication frequency in use from the plurality of M communication frequencies under control of the control station;

a time-division controller for allocating one of said N time slots to communication with the on-board mobile station at said one of said plurality of M communication frequencies; and

an interface for transmission and reception of signals to and from the control station.

Claim 16. (Previously presented - Allowed) The automobile communications system of claim 15, wherein each of the plurality of M communication frequencies is used for both transmission and reception to perform communication with the on-board mobile station according to a TDMA/TDD (Time Division Multiple Access/Time Division Duplex) scheme.

Claim 17. (Previously presented - Allowed) The automobile communications system of claim 15, wherein the frequency generator generates the plurality of M communication frequencies so that the plurality of M communication frequencies are frequency-coherent to the reference frequency wherein each of the plurality of M communication frequencies is used for transmission and reception, and wherein the time-division controller performs communication with the on-board mobile station according to a TDMA/TDD (Time Division Multiple Access/Time Division Duplex) scheme.

Claim 18. (Previously presented - Allowed) The automobile communications system of claim 15, wherein the plurality of M communication frequencies comprises a plurality of

different pairs of first frequencies and second frequencies, wherein the frequency generator generates the first frequencies from one reference frequency in accordance with a first predetermined conversion so that the first frequencies are in a frequency-coherence state.

Claim 19. (Original - Allowed) The automobile communication method according to claim 18, wherein each of the fixed stations generates a reception local frequency from the first frequency in accordance with a second predetermined conversion as used by the on-board mobile station so that the reception local frequency and a radio signal received from the on-board mobile station are in a frequency-coherence state.

Claim 20. (Previously presented - Allowed) The automobile communications system of claim 13, wherein the on-board mobile station comprises:

a frequency-in-use regenerator for regenerating said one of said plurality of M communication frequencies from a signal received from a fixed station which forms a radio zone for communication; and

a communication controller controlling communication with the fixed station using the allocated one of said N time slots at said one of said plurality of M communication frequencies.

Claim 21. (Previously presented - Allowed) The automobile communications system of claim 20, wherein each of the plurality of M communication frequencies is used for transmission and reception, and the communication controller carries out communication with the fixed station according to a TDMA/TDD scheme.

Claim 22. (Previously presented - Allowed) The automobile communications system of claim 20, wherein each of said plurality of M communication frequencies is used for transmission and reception frequencies,

wherein the frequency-in-use regenerator comprises:

a demodulator for demodulating the received signal, and

a phase controller for performing phase control on a signal of an oscillation frequency based on an output of the demodulator such that the demodulator acquires synchronization; and

wherein the communication controller carries out communication with the fixed station according to a TDMA/TDD scheme using the oscillation frequency as a transmission local frequency.

Claim 23. (Previously presented - Allowed) The automobile communications system of claim 20, wherein the frequency-in-use regenerator comprises:

a demodulator for demodulating the received signal using an oscillation frequency, and

a phase controller for performing phase control on the signal of the oscillation frequency based on an output of the demodulator such that the demodulator acquires synchronization; and

wherein the on-board mobile station further comprises:

a converter for generating a transmission local frequency from the signal of the oscillation frequency in accordance with the predetermined conversion, and

a modulator for generating a transmission signal using the transmission local

frequency.

Claim 24. (Original - Allowed) The automobile communication system according to claim 23, wherein the predetermined conversion of the converter is the same as a predetermined conversion for generating a reception local signal from a transmission frequency at each fixed station.

Claim 25. (Previously presented - Allowed) The automobile communications system of claim 13, wherein a fixed station of the plurality of fixed stations comprises:

a communication frequency generator that generates the plurality of M communication frequencies from the signal of a reference frequency coming from the control station;

a selector for selecting one communication frequency from the plurality of M communication frequencies under control of the control station;

a time-division controller for allocating one of said N time slots to communication with the on-board mobile station at said one of said plurality of M communication frequencies; and

an interface for implementing transmission and reception of signals to and from the control station.

Claim 26. (Previously presented - Allowed) The fixed station of claim 25, wherein each of the plurality of M communication frequencies is used for transmission and reception, and communication with the on-board mobile station is carried out according to a TDMA/TDD

scheme.

Claim 27. (Previously presented - Allowed) The fixed station of claim 25, wherein each of the plurality of M communication frequencies is used for transmission and reception, the communication frequency generator generates the plurality of M communication frequencies in each radio zone so that the plurality of M communication frequencies are frequency-coherent to the reference frequency, and the time-division controller carries out communication with the on-board mobile station according to a TDMA/TDD scheme.

Claim 28. (Previously presented - Allowed) The fixed station of claim 25, wherein the plurality of M communication frequencies comprises a plurality of different pairs of a first frequency and a second frequency, and the communication frequency generator generates the first frequency from the reference frequency in accordance with a first predetermined conversion in such a manner that those first frequencies are in a frequency-coherence state over the plurality of radio zones.

Claim 29. (Previously presented - Allowed) The fixed station of claim 25, wherein the plurality of M communication frequencies comprises a plurality of different pairs of a first frequency and a second frequency, and a reception local frequency for demodulating a received radio signal from the on-board mobile station which is generated from the first frequency in accordance with a second predetermined conversion so that the reception local signal is frequency-coherent to the received radio signal from the on-board mobile station.

Claim 30. (Previously presented - Allowed) The on-board radio mobile station in the automobile communications system of claim 13, comprising:

a frequency-in-use regenerator for regenerating said one of said plurality of M communication frequencies from a signal received from a fixed station which forms a radio zone for communication; and

a communication controller for communicating with the fixed station using the allocated time slot based on said one of said plurality of M communication frequencies.

Claim 31. (Previously presented - Allowed) The on-board radio mobile station of claim 30, wherein each of the plurality of M communication frequencies is used for transmission and reception, and the communication controller carries out communication with the fixed station according to a TDMA/TDD scheme.

Claim 32. (Previously presented - Allowed) The on-board radio mobile station of claim 30, wherein each of the plurality of M communication frequencies is used for transmission and reception;

wherein the frequency-in-use regenerator comprises:

a demodulator for demodulating the received signal, and

a phase controller performing phase control on a signal of an oscillation frequency based on an output of the demodulator such that the demodulator acquires synchronization,

wherein the communication controller carries out communication with the fixed station according to a TDMA/TDD scheme by using the oscillation frequency as a transmission local frequency.

Claim 33. (Original - Allowed) The on-board radio mobile station according to claim 30, wherein the frequency-in-use regenerator comprises:

a demodulator for demodulating a received signal of an oscillation frequency, and

a phase controller performing phase control on the signal of the oscillation frequency based on an output of the demodulator such that the demodulator acquires synchronization; and

wherein the on-board radio mobile station further comprises:

a converter for generating a transmission local frequency from the signal of the oscillation frequency in accordance with a predetermined conversion, and

a modulator for generating a transmission signal using the transmission local frequency.

Claim 34. (Original - Allowed) The on-board radio mobile station according to claim 30, wherein the predetermined conversion of the converter is the same as a predetermined conversion for generating a reception local signal from a transmission frequency at each fixed station.

Claim 35. (Previously presented - Allowed) The control station in the automobile communications system of claim 13, comprising:

a reference frequency generator that generates the reference frequency signal for producing the plurality of M communication frequencies in each fixed station;

a communication controller for transmitting and receiving signals to and from the plurality of fixed stations; and

a system controller controlling said one of said plurality of M communication frequencies for the plurality of fixed stations at a predetermined timing in such a way as not to permit simultaneous transmission at a same communication frequency in adjoining radio zones.

Claim 36. (Previously presented - Allowed) The fixed station of claim 28, wherein the plurality of M communication frequencies comprises a plurality of different pairs of a first frequency and a second frequency, and a reception local frequency for demodulating a received radio signal from the on-board mobile station is generated from the first frequency in accordance with a second predetermined conversion so that the reception local signal is frequency-coherent to the received radio signal from the on-board mobile station.

Claim 37. (Previously presented) The method of claim 1, wherein the plurality of M communication frequencies in each radio zone are generated from a single reference frequency.

Claim 38. (Previously presented - Allowed) The method of claim 4, wherein the plurality of M communication frequencies in each radio zone are generated from a single reference frequency.

Claim 39. (Previously presented - Allowed) The system of claim 13, wherein the plurality of M communication frequencies in each radio zone are generated from a single reference frequency.

Claim 40. (Previously presented - Allowed) An automobile communications method between an on-board mobile station and a fixed station system in a plurality of radio zones which are consecutively arranged along a road, comprising:

providing each of the radio zones with a plurality of communication frequencies;

controlling a communication frequency used in each of the radio zones using a time division scheme such that simultaneous transmission at a same communication frequency is not permitted in adjoining radio zones and different time slots are allocated for communications at a same communication frequency in adjoining radio zones; and

continuously communicating with the on-board mobile station at a same communication frequency over the radio zones,

wherein a predetermined number N (N is an integer equal to or greater than 2) of time slots are determined in one period in each of the radio zones, wherein one time slot is assigned to a single on-board mobile station and M (M is an integer equal to or greater than 2) communication frequencies are sequentially switched from one to another at a timing of every N/M time slot.

Claim 41. (Previously presented - Allowed) The automobile communications method of claim 40, wherein the time slot allocated to the on-board mobile station is switched in such a way that the on-board mobile station uses a same communication frequency over the plurality of radio zones.

Claim 42. (Previously presented) The method of claim 1, wherein the time division scheme is such that each time slot for each radio zone uses a different one of said plurality of

M communication frequencies.

Claim 43. (Previously presented - Allowed) The method of claim 4, wherein the time division scheme is such that each time slot for each radio zone uses a different one of said plurality of M communication frequencies.

Claim 44. (Previously presented - Allowed) The system of claim 13, wherein the time division scheme is such that each time slot for each radio zone uses a different one of said plurality of M communication frequencies.

Claim 45. (Previously presented - Allowed) An automobile communications method for an on-board mobile station across a plurality of radio zones which are consecutively arranged along a road, comprising:

providing each of the radio zones with a plurality of M communication frequencies;

providing plurality of N time slots in one period in each of said radio zones;

switching between said plurality of M communication frequencies within each of the radio zones using a time division scheme such that a different one of said N time slots is allocated for adjacent radio zones for each of said plurality of M communication frequencies by sequentially switching from one to another at a timing of every N/M time slot; and

switching a time slot allocated to the on-board mobile station to continuously communicate with the on-board mobile station across the plurality of radio zones, wherein the time division scheme is such that each time slot for each radio zone uses a different one of said plurality of M communication frequencies.

Claim 46. (Currently amended - Allowed) An automobile communications method between an on-board mobile station and a fixed station system comprising a plurality of radio zones consecutively arranged along a road, comprising:

providing each of the radio zones with a plurality of M communication frequencies;

providing a plurality of N time slots in one period in each of said radio zones;

switching between said plurality of M communication frequencies within each of the radio zones using a time division scheme such that a different one of said N time slots is allocated for each adjacent radio zone for each of said plurality of M communication frequencies by sequentially switching from one to another at a timing of every N/M time slot; and

continuously communicating with the on-board mobile station at one of said plurality of M communication ~~c M ommunication~~ frequencies over the plurality of radio zones, wherein the time division scheme is such that each time slot for each radio zone uses a different one of said plurality of M communication frequencies.

Claim 47. (Previously presented - Allowed) An automobile communications system comprising:

an on-board mobile station movable on a road;

a plurality of fixed stations comprising a plurality of radio zones consecutively arranged on the road, wherein each of the plurality of fixed stations are communicable with the on-board mobile station using a plurality of M communication frequencies; and

a control station providing a plurality of N time slots in one period in each of the radio zones, controlling the plurality of fixed stations performing continuous communication with

the on-board mobile station by switching said N time slots in adjoining radio zones with said on-board mobile station using one of said plurality of M communication frequencies in adjoining radio zones, switching one of said N time slots allocated to the on-board mobile station in accordance with the switching in said plurality of fixed stations and by switching between said plurality of M communication frequencies in each of the plurality of radio zones using a time division scheme such that adjoining fixed stations communicate with a plurality of on-board mobile stations using different frequencies of said plurality of M communications frequency at any given time, and sequentially switching said plurality of M communication frequencies from one to another at a timing of every N/M time slots, wherein the time division scheme is such that each one of said N time slots for each radio zone uses a different one of said plurality of M communication frequencies.

Claim 48. (Previously presented - Allowed) An automobile communications method for an on-board mobile station across a plurality of radio zones which are consecutively arranged along a road, comprising:

providing each of the radio zones with a plurality of M communication frequencies;

providing a plurality of N time slots in one period in each of said radio zones;

switching between said plurality of M communication frequencies within each of the radio zones using a time division scheme such that a different one of said N time slots is allocated for adjacent radio zones for each of said plurality of M communication frequencies by sequentially switching from one to another at a timing of every N/M time slot; and

switching a time slot allocated to the on-board mobile station to continuously communicate with the on-board mobile station across the plurality of radio zones at one of

said plurality of M communication frequencies.

Claim 49. (Previously presented - Allowed) An automobile communications method between an on-board mobile station and a fixed station system comprising a plurality of radio zones consecutively arranged along a road, comprising:

providing each of the radio zones with a plurality of M communication frequencies;

providing a plurality of N time slots in one period in each of said radio zones;

switching between said plurality of M communication frequencies within each of the radio zones using a time division scheme such that a different one of said N time slots is allocated for each adjacent radio zone for each of said plurality of M communication frequencies by sequentially switching from one to another at a timing of every N/M time slot; and

continuously communicating with the on-board mobile station at one of said plurality of M communication frequencies over the plurality of radio zones.

Claim 50. (Previously presented - Allowed) An automobile communications system comprising:

an on-board mobile station movable on a road;

a plurality of fixed stations comprising a plurality of radio zones consecutively arranged on the road, wherein each of the plurality of fixed stations are communicable with the on-board mobile station using a plurality of M communication frequencies; and

a control station providing a plurality of N time slots in one period in each of the radio zones, controlling the plurality of fixed stations performing continuous communication with

the on-board mobile station by switching said N time slots in adjoining radio zones with said on-board mobile station using one of said plurality of M communication frequencies in adjoining radio zones, switching one of said N time slots allocated to the on-board mobile station in accordance with the switching in said plurality of fixed stations and by switching between said plurality of M communication frequencies in each of the plurality of radio zones using a time division scheme such that adjoining fixed stations communicate with a plurality of on-board mobile stations using different frequencies of said plurality of M communications frequency at any given time, and sequentially switching said plurality of M communications frequencies from one to another at a timing of every N/M time slots.